Silvopasture Pigs –
NE SARE Project FNE-053

Profitably and Sustainably Converting Underutilized Forested Areas to Fertile Perennial Silvopasture Systems Using Swine

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This project would not have been possible without the contributions of these outstanding individuals and organizations. Their support, advice, and platforms have been essential in making this vision a reality.

Tools Vital to the Project

- **Plant Net**
  Plant Net is an exceptional cell phone app that leverages your camera to identify plants with remarkable accuracy. This tool was instrumental in cataloging pre- and post-grazing plant species, enabling precise monitoring of ecological changes and guiding decisions on pasture enhancement.
- **Premier One Fencing**
  Premier One provided the hog net fencing and solar-powered fence chargers that were vital for safely containing the pigs. These products ensured the animals stayed within designated paddocks, protected from predators, and facilitated easy, flexible paddock rotations to optimize land use.
- **Brower Feeder**
  The Brower Feeder is a robust commercial outdoor hog feeder that significantly reduced labor requirements and feed waste. Its efficient design prevented spillage, saving an estimated ton of feed while keeping the pigs well-fed and reducing ground contamination in the paddocks.
- **Stevens Feed Mill**
  This local feed mill in Stevens, PA, supplied the high-quality, non-GMO grains that fueled the pigs' growth and health. Their dependable service and superior feed ensured that the pigs received optimal nutrition, contributing to their overall wellbeing and productivity.
- **Pig Hollow Farm**
  Located in York, PA, Pig Hollow Farm supplied healthy, happy feeder piglets with strong genetics, forming the foundation of this project. Their excellent breeding practices ensured robust pigs that adapted well to the silvopasture environment and performed exceptionally.

Each of these tools and resources played a critical role in the success of this silvopasture project, providing the functionality, reliability, and quality needed to achieve the project's objectives.

Overview

The research project, titled "Profitably and Sustainably Converting Underutilized Forested Areas to Fertile Perennial Silvopasture Sustenance Using Swine," sought to explore the viability of transforming underutilized forested lands into productive silvopasture through the strategic use of swine. The project was successful in meeting its objectives, demonstrating the economic, environmental, and ecological benefits of this innovative land management approach.

The "Silvopasture Pigs" project offers a blueprint for sustainability by integrating economic, environmental, and social benefits tailored to the Northeast (NE) Region of the United States. Economically, the system utilizes pigs as low-cost labor to convert underutilized forested areas into productive silvopasture, saving farmers significant land-clearing expenses. By simultaneously grazing and disturbing the soil, pigs prepare the ground for seeding high-value pasture grasses, reducing the need for heavy machinery and chemical inputs. The diversified output—combining pork, perennial pastures, and improved land value—enhances profitability and resilience against market volatility. Additionally, farmers can realize savings by reducing feed costs through access to forage, further boosting margins.

Environmentally, this system enhances soil health, mitigates erosion, and improves carbon sequestration. The rotational grazing of pigs minimizes overgrazing, encourages biodiversity by fostering a mix of grasses, legumes, and native species, and eliminates invasive plants like multiflora rose. By reducing the reliance on chemical fertilizers, herbicides, and tilling, this approach significantly lowers the farm's carbon footprint. Furthermore, the conversion of dense woodlands into open silvopasture increases sunlight penetration, which fosters a balanced ecosystem that benefits wildlife and pollinators while maintaining tree cover for shade and water retention.

Socially, the project empowers small and medium-sized farmers in the NE region by offering a replicable, cost-effective model suited to the area’s climate and topography. With limited large-scale farmland in this region, transforming underutilized wooded areas is a practical solution for expanding farm productivity. This project also strengthens rural communities by demonstrating the profitability and ecological benefits of sustainable agriculture, inspiring others to adopt similar practices. Educational outreach through farm tours, YouTube videos, and documentation ensures broader accessibility, fostering a community of farmers committed to regenerative practices that are both profitable and ecologically responsible. This alignment of economics, environment, and community makes the project a powerful model for the NE region.

Project Objectives and Methodology

The primary goals of the project were to:

1. Develop a replicable framework for converting underutilized forested areas into fertile silvopasture.

2. Evaluate the economic and ecological impacts of introducing swine as a key agent in land transformation and management.

3. Assess the quality of pork produced through this method compared to traditional systems.

4. Demonstrate the long-term sustainability of rotational grazing in silvopasture systems.

The methodology involved identifying underutilized forested parcels and introducing swine to these areas in a controlled rotational grazing system. Swine were used as natural land clearers and soil enhancers. Their rooting and foraging behaviors loosened compacted soil, controlled undergrowth, and integrated organic matter into the ground. Perennial forage species such as legumes and grasses were then established, creating a productive and biodiverse silvopasture system.

Benefits of Silvopasture

Silvopasture, the integration of trees, forage, and livestock, is a land-use practice with numerous benefits. Converting forested areas into silvopasture preserves the ecological value of the trees while introducing agricultural productivity. Trees provide shade and wind protection for livestock, improving animal welfare and reducing heat stress. Their roots stabilize soil, prevent erosion, and contribute to carbon sequestration, mitigating climate change effects.

The incorporation of swine into silvopasture systems was particularly effective in this project. By selectively rooting and grazing, swine enhanced soil fertility, reduced invasive plant species, and prepared the land for forage establishment. This approach minimized the need for mechanical or chemical land-clearing methods, reducing costs and environmental impact.

Higher Quality of Forest-Raised Pork

Swine raised in silvopasture systems displayed improved health and well-being compared to those in conventional systems. Access to diverse forage, nuts, and roots contributed to a more varied and nutritious diet, which translated into higher-quality pork. Meat from silvopasture-raised swine is known for its superior flavor, marbling, and texture, which commands a premium in niche markets.

Furthermore, the natural environment of silvopasture allowed swine to exhibit instinctive behaviors such as rooting and wallowing, contributing to their overall welfare. Ethical and sustainable animal husbandry

practices increasingly resonate with consumers, providing an opportunity for farmers to differentiate their products in the market.

Sustainability of Rotational Grazing

Rotational grazing is a cornerstone of sustainable silvopasture management. In this project, swine were moved systematically across sections of the silvopasture, allowing areas to rest and regenerate. This approach prevented overgrazing, maintained soil health, and supported the long-term productivity of the land.

One of the most significant advantages of rotational grazing is its contribution to soil fertility. Swine manure acted as a natural fertilizer, enriching the soil with essential nutrients. Coupled with the establishment of deep-rooted perennial forages, this practice improved soil structure, water retention, and resilience to drought.

Rotational grazing also enhanced biodiversity within the silvopasture ecosystem. Native plants, insects, and wildlife benefited from the varied habitat created by the presence of forage, trees, and grazing animals. This balance between agriculture and ecology highlights the potential of silvopasture systems to harmonize productivity with environmental stewardship.

Project Outcomes and Implications

The project demonstrated that converting underutilized forested areas into silvopasture using swine is both profitable and sustainable. Key outcomes included:

1. Economic Viability: The initial costs of establishing silvopasture were offset by savings on land clearing, increased forage production, and the premium market value of forest-raised pork.

2. Environmental Benefits: The project reduced soil erosion, enhanced biodiversity, and contributed to carbon sequestration, aligning with broader sustainability goals.

3. Scalability: The methods used in this project are replicable and scalable, offering a model for small- and medium-scale farmers seeking sustainable land management strategies.

The success of this research underscores the potential of silvopasture systems to transform underutilized lands into productive and ecologically sound agricultural spaces. By leveraging the natural behaviors of swine, farmers can achieve multiple objectives: improving land fertility, producing high-quality meat, and enhancing ecosystem health.

Conclusion

Silvopasture with pigs is particularly well-suited to farmers in the northeastern United States due to the region's abundance of underutilized forested areas and the prevalence of dense brush and undesirable saplings. The natural rooting and foraging behaviors of pigs make them ideal for clearing these overgrown

areas efficiently and sustainably, reducing the need for costly mechanical equipment or chemical herbicides. Additionally, the northeast's climate supports the growth of diverse perennial forages that thrive in silvopasture systems, providing high-quality feed for livestock once the land has been cleared. The region's growing consumer demand for ethically raised, locally sourced meat aligns perfectly with the high-quality pork produced in silvopasture systems, offering northeastern farmers an opportunity to enhance both their land management and market profitability.

The integration of silvopasture and rotational grazing with swine presents a promising solution for sustainable agriculture. This project has highlighted the feasibility and benefits of such systems, paving the way for broader adoption. As the agricultural sector continues to face challenges such as land degradation and climate change, innovative practices like silvopasture offer a path forward—combining profitability with environmental stewardship.

A good way to trap the pigs in homebase for paddock shifts is to bring them cuttings such as these Chestnut cuttings. The pigs didn’t eat them, but their curiosity allowed me to contain them.

Silvopasture Pigs

2023

Paddock 1 (Mid-April to Mid-May 2023)

Paddock 1 went largely as expected. Due to an unfortunate farrowing incident, we had to take piglets a month earlier than planned, requiring adjustments to paddock rotations as the pigs cycled through the woods. The pigs arrived on April 7th as approximately 40-pound weaned piglets. They spent about a week in the **"home base"** area, where they were trained to electric fencing. Afterward, they were released into Paddock 1, which had a 500-foot perimeter and covered roughly 0.5 acres.

During their four weeks in this paddock, the pigs exhibited typical foraging and rooting behaviors. As seen in the **pig paddock 1 walk** video, the pigs did not create significant berms along the fence line for tree and shrub planting. Therefore, we opted to seed this paddock with a general pasture seed mix. The pigs were trapped back in **HOME BASE** on May 13th, and we reconfigured the **Premier1 Hog Net** to establish the perimeter for Paddock 2.

A drought followed, delaying seeding until mid-June. Once the pigs were removed from Paddock 1, we cleared dead limbs, trimmed multiflora rose and felled standing dead trees.

Plant Species (Present Before Pig Interaction):

- Autumn Olive
- Chickweed
- Garlic Mustard
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Amur Honeysuckle
- Black Cherry
- Rough Bluegrass
- Common Elderberry
- Box Elder

Plant Species (Post Grazing):

Largely the same. The pigs consumed and trampled the Rough Bluegrass, Sticky Willy, Multiflora Rose (fresh growth), Chickweed, and Autumn Olive (low-hanging growth). Much of the ground-level growth was trampled, and the earth was significantly disturbed.

Plant Species (Added After Pigs Were Moved to Create Silvopasture System):

- Pasture Perfect General Purpose Mixture (containing):
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 1 Walk Video: https://youtu.be/MK1fTq5Pc_I

Paddock 2 (Mid-May to Mid-June 2023)

The move from Paddock 1 to Paddock 2 did not go well. In short, all 12 of our pigs escaped the fencing and were loose with no barrier between them and the greater world. Fortunately, we were able to collect them back into HOME BASE and redesign Paddock 2 to remove some key flaws in our fence layout. In previous years we have never had a pig escape the Hog Net and with the

lessons learned we should not have any more escapes in the future. There were several contributing factors to the escape that anyone looking to replicate our process should avoid. First, the pathway from HOME BASE to paddock 2 was too narrow, causing the pigs to bunch up. Second, we placed their feeder in the pathway, narrowing their path to paddock 2 to about 5 or 6 feet on either side of the feeder. Third, we had someone in the pathway filming the move to document our process, but the result was an additional unfamiliar thing that the pigs needed to pass before they could enter Paddock 2. Typically, the pigs will slowly venture out into their new area and learn the perimeter without any external pressure. In this instance the pigs were not able to learn in a stress-free fashion, brushed the fence, had limited room to retreat, charged and toppled the fence, and were free. They ran to a large multiflora rose bush that they had used for shelter in Paddock 1 and calmed down. Then they eventually returned to the area where their feeder used to be, and we were able to slowly coax them back into HOME BASE so that we could rebuild the fencing. We moved the feeder deeper into the paddock, widened the laneway significantly, and let the pigs discover the perimeter without any human pressure and experienced no more issues. The video paddock 2 shows the new perimeter of about 400 feet and an area of approximately 0.5 acres. It also shows the beginning effects of the lack of rain and how that determines the species the pigs prefer to graze upon. We have noticed that the pigs eat the tall grasses, for instance, after they have been moistened by either a sprinkler or rain. See the same paddock after the pigs were moved on here.

Plant Species (Present Before Pig Interaction):

- Autumn Olive
- Chickweed
- Garlic Mustard
- Northern Spice Bush
- Black Walnut

Videos:

- Paddock 2 Pig Escape: https://youtu.be/PmCL7LWz2fg
- Paddock 2 Walk Video 2: https://youtu.be/vERkb2CPnIw

Paddock 3 (Mid-June to Early August 2023)

The pigs were moved to their largest paddock yet on June 20th, with a perimeter of approximately 700 feet and an area of 0.75 acres. The rainfall, which had been scarce during the earlier paddocks, finally arrived, and the pigs began to make a more dramatic impact on the soil, trampling vegetation and creating mud. Originally, the pigs were scheduled to stay in this paddock for 6 weeks, but with the increased rainfall, the pigs were creating more mud than anticipated, which necessitated shortening their time in Paddock 3. We moved the feeder and waterer locations more frequently (every 14 days) to ensure even distribution of disturbance and prevent overuse of specific areas. The pigs were thriving, eating tall grasses and breaking up more vegetation, especially after being moistened by sprinklers or rain.

Plant Species (Present Before Pig Interaction):

- Autumn Olive
- River Hawthorn
- Mile-a-minute Weed
- Wrinkle-leaf Goldenrod
- Tall Goldenrod
- Multiflora Rose
- Maple (various)

- Bamboo
- White Cut Grass
- Poison Ivy

Plant Species (Post Grazing):

Much of the vegetation was consumed or trampled, leaving the soil disturbed. The pigs significantly impacted the undergrowth, removing undesirable species and creating a better seedbed for future pasture growth.

Plant Species (Added After Pigs Were Moved to Create Silvopasture System):

- Pasture Perfect General Purpose Mixture (containing):
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 3 Walk Video 1: https://youtu.be/J7WyVyAwnsE
- Paddock 3 Walk Video 2: https://youtu.be/ZQTxkmhDEVw

Paddock 4 (Early August to Early September 2023)

The pigs in Paddock 4 were benefiting from the ample rainfall, and their impact on the ground was increasing as they grew larger. The vegetation, particularly multiflora rose, northern spice bush, and any trees that were not large enough to be uprooted, was the primary vegetation remaining.

We encountered several design errors during this rotation, particularly with the initial plan for tree plantings along the berm created by rooting. Instead, we transitioned to planting in "pods" or clusters, which allowed for more flexible fence placement and more versatile paddock management. The pigs are very healthy, active, and are doing exactly what we wanted them to do regarding disturbing the soil and eliminating the underbrush. Seeding behind the pigs is also very successful with lush pasture popping up within 21 days of relocating the pigs. I estimate their weight to be about 225 to 250 lbs. as of 5 September (some are a bit more). The rain has softened the ground to the point that several of the dead ash trees have fallen. We will still take down a significant number of the maples (the most prevalent tree in these woods) to open the canopy and allow more sun to hit the forest floor. Much of the tree felling will be completed in November once the risk of upsetting pigs and fences has passed. The final video of paddock 4, post pig rotation, can be viewed here.

Plant Species (Present Before Pig Interaction):

- Autumn Olive
- River Hawthorn
- Mile-a-minute Weed
- Wrinkle-leaf Goldenrod
- Tall Goldenrod
- Multiflora Rose
- Maple (various)
- Bamboo
- Red Mulberry
- Poison Ivy

Plant Species (Post Grazing):

Many of the smaller, less desirable plants were eaten or trampled by the pigs. The larger trees remained, but significant disturbance to the underbrush created opportunities for future pasture development.

Plant Species (Added After Pigs Were Moved to Create Silvopasture System):

- Pasture Perfect General Purpose Mixture (containing):
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 4 Walk Video: https://youtu.be/SRwEkz9bitw
- Paddock 4 Walk Video: https://youtu.be/UWL2xewJQak?si=eIjZxPSZpr_G7h5v

Paddock 5 (Early September to Mid-October 2023)

Paddock 5 was a final, critical area for disturbance, especially given its overgrowth of multiflora rose and bamboo. The pigs were placed in this paddock when they were at their largest, allowing them to fully utilize their rooting and grazing behaviors to clear unwanted vegetation.

This paddock overlapped with Paddock 1 from the previous year, but we had to adapt due to soil disturbance and the need to protect the land's fertility. Significant disturbance and manual cutting of undesirable vegetation occurred, and we saw rapid growth of new pasture once the pigs were moved out.

Plant Species (Present Before Pig Interaction):

- Autumn Olive
- Mile-a-minute Weed
- Garlic Mustard
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Amur Honeysuckle
- Black Cherry
- Rough Blue Grass
- Common Elderberry
- Dwarf Honeysuckle
- Goldenrod
- Broadleaf Dock
- Skunk Cabbage
- Red Clover
- Maple (various)

Plant Species (Post Grazing):

While the pigs consumed most of the vegetation in the paddock, species like rose and spice bush were still somewhat present, though their young growth was eaten. The disturbance to the land created a solid seedbed for the new grass species.

Plant Species (Added After Pigs Were Moved to Create Silvopasture System):

- Pasture Perfect General Purpose Mixture (containing):
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 5 Walk Video 1: https://youtu.be/yRFI2CFsLvc?si=cGdHb6tGrlORRg7C
- Paddock 5 Walk Video 2: https://youtu.be/yi4I_Zm-h-Q?si=opUy6dJ8Q8Wb_Lx4

2024

Pigs arrived on farm 5 APR 2024 and weighed an estimated 20-25 lbs. each. Lots of sniffles and coughing with this batch. Throughout the "home base" phase where they learn electric fence we had bouts with illness and lost one pig. The veterinarian administered antibiotics to the sick piglet, but the medicine did not save the pig. This was our first piglet lost since we started raising pigs, so while the event was unfortunate, we are still pleased with our impressive survivability rate. To help document the progress of the project please view the year 2 overview video below.

The pigs were in home base a bit longer than typical due to a variety of conditions including:

- home base size (this year I made it twice as big to lessen impact on the land)
- weather (we had well above average rain in early and mid-April)
- illness (I didn't want to add stress to the animals while they weren't 100% healthy)

Videos:

- Year 2 Silvopasture Overview: https://youtu.be/NZzG3NPNdFk?si=vjVU0Zwfxo79JINU

Paddock 1 (Late-April to Late-May 2024)

Paddock 1 was smaller than we typically used, partially because I increased the size of homebase, and partially because the vegetation (mostly grasses) from last year's fertility was so thick I wanted the pigs to have a chance to consume it. The initial walk-through video of paddock 1 can be viewed below. The pigs performed well, eating most of the grass and forbes (and bamboo shoots) and breaking up many of the old, rotted logs that are laying around the silvopasture. With only 10 pigs and thicker grasses I expect we will be able to move the pigs more slowly through the paddocks while reaping the same disturbance and fertility benefits as previous years. As expected, the pigs created a fair among of disturbance and consumed the available forage. A video of paddock one after the pigs affected it is viewable below.

Plant Species (present before pig interaction)

- Autumn Olive
- Garlic Mustard
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Rough Blue Grass
- Goldenrod
- Broad Leaf Dock
- Skunk Cabbage
- Red Clover
- Maple (various)

- Sticky Willy
- Bamboo

Plant Species (post grazing)

- Autumn Olive
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Rough Blue Grass (eaten and trampled)
- Skunk Cabbage (trampled but not eaten)
- Maple (various)
- Bamboo (Pigs only eat the young growth)

Plant Species (added after pigs were moved to create Silvopasture system)

- **Pasture Perfect General Purpose Mixture (containing)**
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 1 Walk Video 1: https://youtu.be/fMRKFk9jDSA?si=LQFT5SgmN97uLFbA
- Paddock 2 Walk Video 2: https://youtu.be/20Wgk3BqJfA?si=pMImvRVhkliJIOHZ

Paddock 2 (Late-May to Late-June 2024)

The pigs moved to Paddock 2 and were introduced to the new commercial Brower brand hog feeder. It took them a day or two to figure it out (they may have been too small to manipulate it right away) but after a few days of demonstrating to them how it worked they figured it out and it has reduced feed waste to near zero. Check out the pigs using the feeder below! The feeder, once emptied, is light enough to move without equipment and is very helpful in focusing disturbance, reducing compaction, and controlling the pigs. View a video of moving the feeder below. Please view the initial walk through of paddock 2 below. There is a lot of grass in this paddock due to the removal of some overstory trees and the added fertility of last year's pigs so I expect they will be able to graze this ½ acre paddock for 4-5 weeks. Paddock 2 went according to plan and the pigs consumed some amazing forage. They are thriving and are once again clearing out undesirable species through rooting and trampling so that we can plant behind them. Please view the walk through video of paddock 2 after the pigs have been moved on below.

Plant Species (present before pig interaction)

- Autumn Olive
- Bittercress
- Buttercup
- Plantain
- Blisterwort
- Common Cinquefoil
- Honeysuckle
- Garlic Mustard
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Rough Blue Grass
- Orchard Grass
- Elderberry
- Goldenrod
- Broad Leaf Dock
- Skunk Cabbage
- Red Clover
- Maple (various)
- Sticky Willy
- Bamboo

Plant Species (post grazing)

- Autumn Olive
- River Hawthorn
- Mile-a-minute weed (very little left)
- Multiflora rose
- Maple (various)
- Bamboo
- Red Mulberry
- Poison ivy (only what the pigs couldn't reach)
- Sasafrass

Plant Species (added after pigs were moved to create Silvopasture system)

- **Pasture Perfect General Purpose Mixture (containing)**
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 2 Pigs using the feeder: https://youtu.be/h75qwMUismA?si=p1mc2PaNNE-i5EjR
- Paddock 2 Moving the Feeder: https://youtu.be/2zms586ytio?si=5lZYHC2vUx__2Bf1 .
- Paddock 2 Walk Video 1: https://youtu.be/cAqHu7PBtOU?si=Nfu3ldZwHTsVHCec
- Paddock 2 Walk Video 2: https://youtu.be/CDtxsFtpcqY?si=t22wHARy7xyFm_SV

Paddock 3 (Late-June to Late July 2024)

Below is a video that gives the general guidelines we follow when determining the appropriate time to shift paddocks. The pigs were moved in the last week of June into an approximately ¾ acre paddock (600' perimeter) with large seasonal wallows. Please view the initial walk through of paddock 3 below. Typically, we start off July relatively wet and then go into a very dry period and this proved to be largely the case in 2024. By having access to the wallows made by last year's pigs, our requirement for making wallows using a sprinkler is minimized. We still run the sprinkler for the pigs on the hottest/driest days to ensure they have sufficient mud to cool themselves. The introduction of the commercial hog feeder has reduced compaction in the feed area, feed waste, and mud creation by spreading out the pig interaction with the feeder. We move it each time it is filled, either by manually dragging it, or using the winch on our side by side. The grass in paddock 3 was over 18 inches tall when the pigs were introduced and while much of it gets trampled, the pigs also eat a large quantity. The final walkthrough of paddock 3 after the pig rotation can be viewed below.

Plant Species (present before pig interaction)

- Autumn Olive
- River Hawthorn
- Mile-a-minute weed (seems visually reduced from last year)
- Wrinkle leave goldenrod
- Tall goldenrod
- Multiflora rose (manually reduced with string trimmer)
- Maple (various)
- White cut grass
- Japanese stilt grass
- Poison ivy
- Touch me not
- Jack in the pulpit
- Polecat weed
- Japanese barberry
- Southern arrowwood
- Rough bluegrass

Plant Species (post grazing)

- Autumn Olive
- River Hawthorn

- Mile-a-minute weed (very little left. Pigs rip most of it out)
- Multiflora rose (young growth eaten)
- Maple (various)
- Japanese stilt grass (mostly eaten/trampled)
- Poison ivy (eaten at ground level)
- Japanese barberry
- Southern arrowwood

Plant Species (added after pigs were moved to create Silvopasture system)

- **Pasture Perfect General Purpose Mixture (containing)**
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- When to shift paddocks: https://youtu.be/z-U-p1x2rE8?si=-LX6v7JGk9NMJx0H
- Paddock 3 Walk Video 1: https://youtu.be/b5k4SCD7q6Y?si=1sp2Anpc1MYbp5Bx
- Paddock 3 Walk Video 2: https://youtu.be/u6uBB7TFTB0?si=TI1hEu-Xil66VHGM

Paddock 4 (Late July to Early Sep 2024)

Paddock 4 is lush and large, containing the largest wallow in our silvopasture. This wallow is fed by a natural spring and even in the driest of droughts it stays wet. This is an enormous benefit and the reason that we use this paddock in August since August is typically our driest month and this year is not different. The initial walk-through video of paddock 4 can be viewed below. The pigs quickly decimated the ground-level forage and did quite a bit of rooting. They did not dig many holes though, because the ground is so dry and hard in most places that they aren't able to dig it up. There is an apple tree in paddock 4 that is dropping its apples which provides additional forage, and the apple and pear trees on the farm outside of the silvopasture are also dropping fruit which we haul to the pigs to augment their grain. The Berkshire-Old Spot crosses are going very well and are less destructive than the Large Black pigs from last year. We will continue to use this paddock for approximately 5 weeks so that they spend a comparable amount of time in their last paddock. The final walk-through video of paddock 4 can be viewed below.

Plant Species (present before pig interaction)

- Autumn Olive
- River Hawthorn
- Mile-a-minute weed
- Wild Lettuce
- Multiflora rose
- Maple (various)

- Bamboo
- Red Mulberry
- Poison ivy
- Sasafrass
- Orchardgrass
- Red Clover
- White clover
- Chicory

Plant Species (post grazing)

- Autumn Olive
- River Hawthorn
- Mile-a-minute weed (very little left)
- Multiflora rose
- Maple (various)
- Bamboo
- Red Mulberry
- Poison ivy (only what the pigs couldn't reach)
- Sasafrass

Plant Species (added after pigs were moved to create Silvopasture system)

- **Pasture Perfect General Purpose Mixture (containing)**
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

Videos:

- Paddock 4 Walk Video 1: https://youtu.be/b00sjyvy-5k?si=tZjYum_8wFOcjb4q
- Paddock 4 Walk Video 2: https://youtu.be/A9N_2mccGlI?si=0ieYwV2hsMZ7JlVF

Paddock 5 (Early Sep to Mid October Completion 2024)

Due to dry conditions this year, we again required a fifth paddock for both the welfare of the land as well as the welfare of the animals. The initial walk-through video of paddock 5 can be viewed below. The fifth paddock was 700' in perimeter and about ¾ acres in size. We had some rain in September but not as much as I had hoped for, requiring sprinklers for pig wallows to be a frequent occurrence. Paddock 5 has some wet areas that the pigs typically wallow in, but they are not spring fed, so during dry weather they are not as useful as in wetter periods. This paddock is largely overgrown with multiflora rose and bamboo and needs the most disturbance which is why we wait until the pigs are largest to put them into it. Additionally, I need to thin the maples significantly here

to open up the canopy and get more sunlight hitting the ground. The pigs caused significant disturbance over the course of the 6 weeks they were in paddock 5, aided by manual cutting and removal of multiflora rose and bamboo when opportunities presented themselves. Prior to the first freeze, but after partial leaf fall, we heavily seeded the entire pasture (all 5 paddocks) with a pasture mix to allow the seed to over winter under the leaf mulch. The final walk through of paddock 5 can be viewed below. The date of the seeding was 6 November 2024. We did a seeding example while the pigs were still in paddock 5 to demonstrate how to use the animals to 'cultipack' your seed while spreading mulch. Please view the demonstration video below.

Plant Species (present before pig interaction)

- Autumn Olive
- Mile a Minute Weed
- Garlic Mustard
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Amur Honey Suckle
- Black Cherry
- Rough Blue Grass
- Common Elderberry
- Dwarf Honey Suckle
- Goldenrod
- Broad Leaf Dock
- Skunk Cabbage
- Red Clover
- Maple (various)

Plant Species (post grazing)

- Autumn Olive
- Mile a Minute Weed (significantly disadvantaged)
- Northern Spice Bush
- Black Walnut
- Multiflora Rose
- Amur Honey Suckle
- Black Cherry
- Rough Blue Grass (mostly consumed)
- Broad Leaf Dock
- Maple (various)

Plant Species (added after pigs were moved to create Silvopasture system)

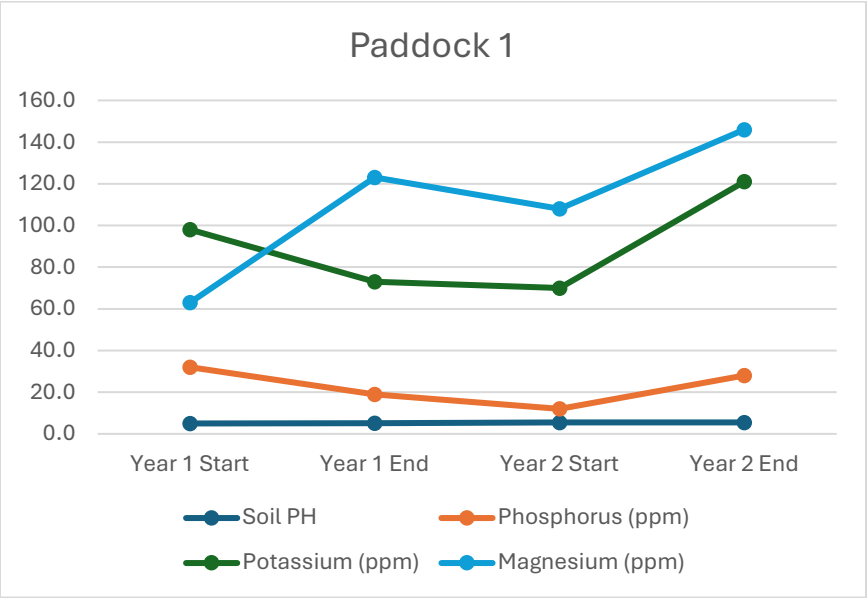
- **Pasture Perfect General-Purpose Mixture (containing)**
    - Tekapo Orchardgrass
    - Duo II Festulolium
    - Power Tetraploid Perennial Ryegrass
    - Profit Orchardgrass

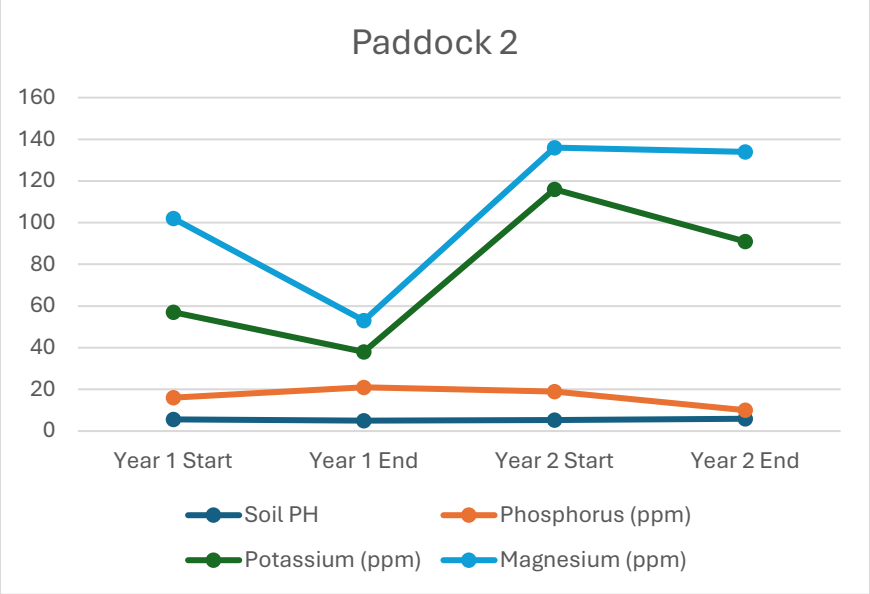
Videos:

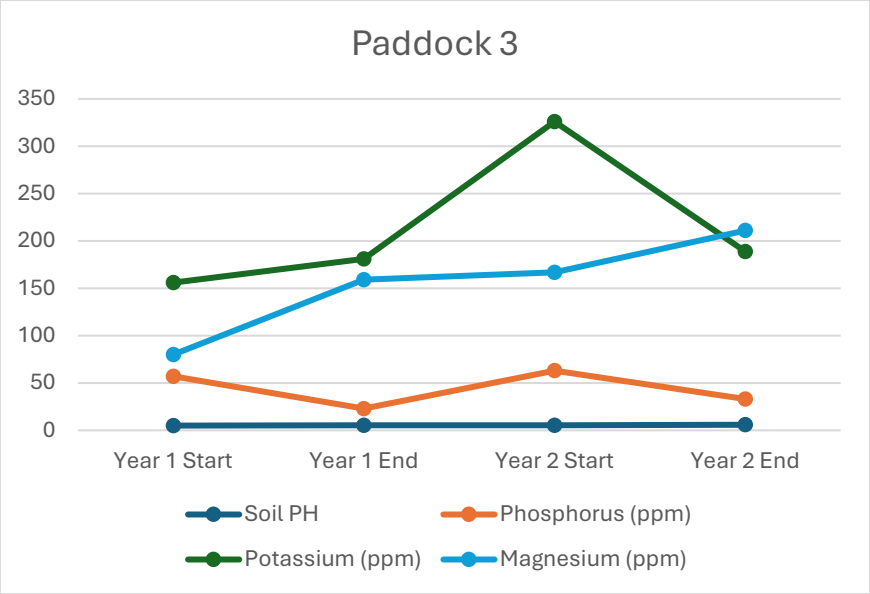
- Paddock 5 Walk Video 1: https://youtu.be/XmuqCTbhBWs?si=fHjUv8nnzbemkMnD
- Paddock 5 Walk Video 2: https://youtu.be/F8WhTBdn_kE?si=2d2oSq2ISFUYLZ4X
- Using Pigs as Cultipackers: https://youtu.be/fKym1YoAQxY?si=nv61ENEePaHda7Ss

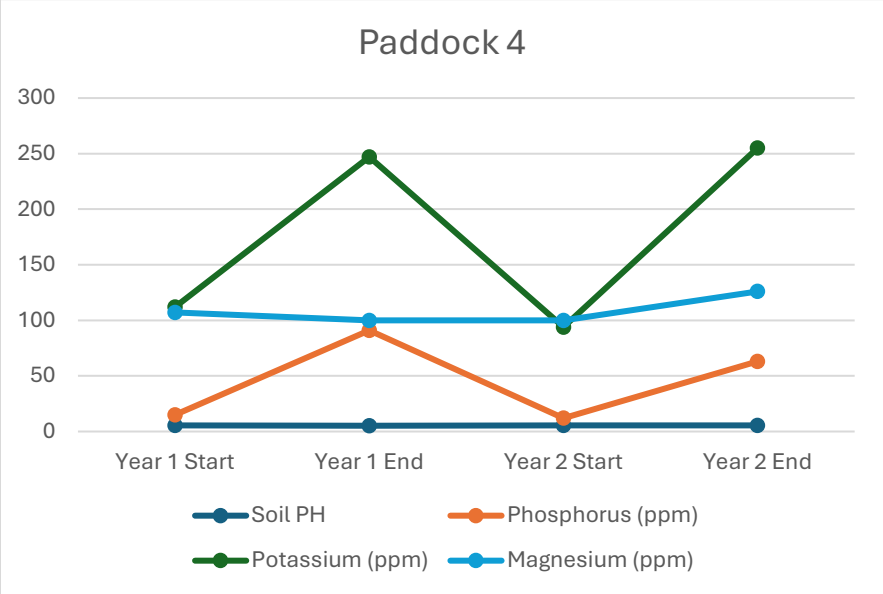
Petting the Pigs everyday will keep them calm and make all aspects of using them to generate Silvopasture more manageable.

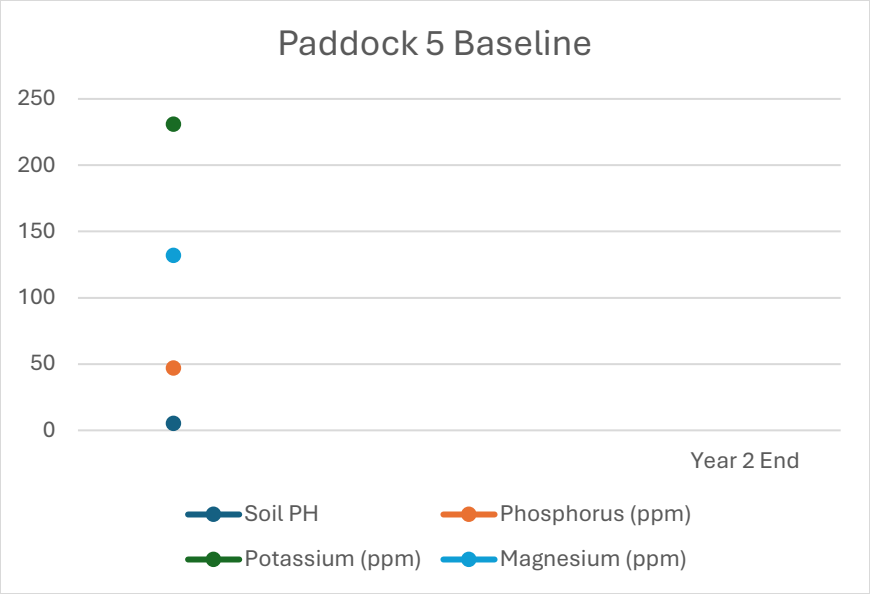
Soil Sample Analysis






Paddock 3
350
300
250
200
150
100
50
0
Year 1 Start
Year 1 End
Year 2 Start
Year 2 End
Soil PH
Phosphorus (ppm)
Potassium (ppm)
Magnesium (ppm)


Paddock 4
300
250
200
150
100
50
0
Year 1 Start
Year 1 End
Year 2 Start
Year 2 End
Soil PH
Phosphorus (ppm)
Potassium (ppm)
Magnesium (ppm)



Observations

1. P and K generally correlate over time

2. PH remained generally unaffected throughout the project, tending toward the acidic side at an average of 5.4 across all paddocks.

3. Paddock 1 was also paddock 5 in year 1. In year 2, this was also true but there was also some new ground added to Paddock 5 which was tested separately as a baseline.

Financial Data

Category	Year 1 (2023)	Year 2 (2024)	Change Y/Y (adj. for hogs)
Revenue	$14,895.00	$12,056.62	-19%
Expenses*	$10,393.00	$8,170.24	-21%
-Feeder Piglets	$1,500.00	$1,375.00	N/A Piglets $125.00 / yr.
-Feed	$4,480.00	$2,710.24	*2 less piglets in 2024 -40%
-Misc	$445.00	$445.00	0%
-Labor	$,3080.00	$3,080.00	0%
-Infrastructure Costs	$4,440.00	$2,800.00	-37%
Avg. Profit per Hog	$375.17	$388.63	4%

* Expenses are determined by amortizing infrastructure costs over 5 years.

Metrics

Category	Year 1 (2023)	Year 2 (2024)	Change Y/Y (adj. for hogs)
AVG Weight per Hog	318	318	0%
AVG Hanging Weight per Hog	222.3	222.6	0%
AVG Feed per Hog	1166.7	1042.4	-11%
Feed Conversion Rate	4.20	3.75	-11%
AVG Feed Cost per Hog	$373.33	$ 271.02	-27%
AVG Labor Cost per Hog	$256.67	$ 308.00	20%
AVG Revenue per Hog	$ 1,241.25	$1,205.66	-3%
AVG Profit per Hog	$ 375.17	$388.64	4%

Key Observations

Amazing consistency with AVG finishing and hanging weights year over year. This is a testament to using a known and experienced pig breeder.

Note the significant decrease in AVG Feed per Hog year over year and the associated AVG Feed cost per Hog, directly attributable to the purpose-built commercial hog feeder and its waste reduction.

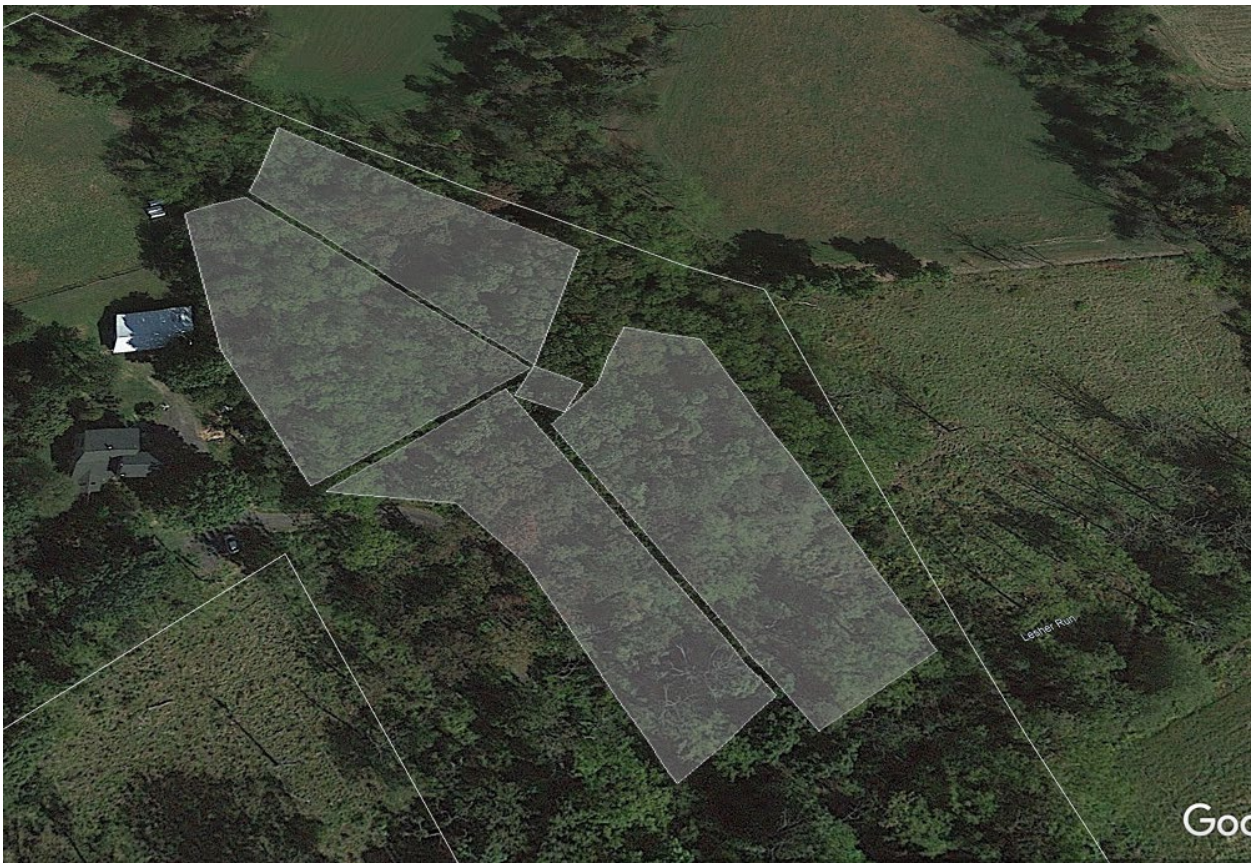
Need to look at feed conversion rate and figure out why it declined…that doesn't make sense since we fed less but achieved the same AVG hanging weight.

Cumulative Profitability

Cumulative Revenue over project	$26,951.62
Cumulative Expense over project	$18,563.24
Cumulative Profit over project	$8,388.38

Additional Photos of Project

Building a new paddock for the pigs by dragging temporary electric net fencing through the woods along a precut path. This method allows for flexible, rotational grazing and ensures the pigs have access to fresh forage while preserving the health of the forested area.



This Google Earth view shows the typical pig paddock rotation on our farm. The overlay highlights how we strategically move the pigs between paddocks to optimize pasture health and ensure sustainable foraging, allowing the land to rest and regenerate.

These pigs are hard at work clearing a brushy area of young Autumn Olive bushes and other ground-level forage. Despite their enthusiasm, they respect the electric net fence, showcasing the effectiveness of this method in managing invasive plants and maintaining controlled grazing.

Here, the pigs interact with an overturned rugged trough while a sturdy feeder built from Farm Builder plans, featuring a wooden base and an IBC Tote, stands in the background. The pigs' rough use of both feeders highlights the importance of durable infrastructure to withstand their natural behaviors and ensure long-term functionality.

A pig enjoying a wallow, created out of necessity to cool off and protect its skin. With consistent paddock rotation, the pigs return to the same wallows year after year. These natural pools not only provide relief for the pigs but also contribute to the overall ecosystem by creating unique microhabitats for other species.

The pigs gather near the IBC and trough feeders, with feed in the trough to help distract and consolidate them. This technique is essential when moving paddocks and infrastructure, ensuring a smooth transition and reducing stress on the pigs during the process.

Though small in size, these pigs have no trouble moving in and out of the calf shelter, demonstrating how well-suited this structure is for their needs. Calf shelters provide a simple, cost-effective option for pig housing, offering easy access and protection from the elements when available.